A-Max IV

COLOR

ReadySoft

A-Max IV

The Color Macintosh® emulator for your Amiga®

User's Guide for

Version 4.0

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This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

* Reorient or relocate the receiving antenna
* Increase the separation between the equipment and the receiver
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* Consult the dealer or an experienced radio/TV technician for help.

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Credits

This manual was created using WordPerfect and Ready, Set, Go! by Letraset running under A-Max IV and System 7 on Commodore Amiga computers.

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A-Max Hardware Design by Ralph and Gunther Doewich, CyberCube Research Ltd.

A-Max IV User's Guide by Bob Eller, with Jim Meyer
Layout and Graphics by Jim Meyer

Portions of this User Guide are based on the A-Max II Version 2.5 User's Guide by Gary Gehman and Simon Douglas.

Only *AMIGA* makes it possible!

Table of Contents

manual that accompanied your system. Information on using the Macintosh operating system is included with the System 7 upgrade kit, available from Apple.

In order for the installation and set-up of A-Max IV to go smoothly, please review this manual before attempting to install or use A-Max IV. The manual has been constructed according to the following general outline:

Introduction: The section you are now reading.

Installing A-Max IV: Describes setting up the hardware elements of A-Max IV and connecting it to your Amiga.

Amiga Disk Drives and File Transfer: Explains the types of Amiga disk drives compatible with A-Max IV and how to use the AmigaDOS based A-Max IV File Transfer utility to copy low-density Macintosh disks for use with A-Max IV.

A-Max IV Startup: Describes how to get A-Max IV up and running and the various display and configuration options available.

A-Max IV Operation: Discusses the differences between using a true Macintosh and an Amiga functioning as one under A-Max IV.

Using A-Max IV with Hard Drives: Describes how to set up Amiga hard drive partitions for use as A-Max/Macintosh storage devices. Also, how to access external SCSI devices through the Amiga controller.

Software Compatibility: Presents information relating to different versions of the Macintosh system software and describes the sorts of third-party programs that will not work under A-Max IV.

Macintosh File Transfer Utility: Explains how to move files from your A-Max IV Mac to the Amiga.

Printers: Explains how to use your printer with A-Max IV.

Glossary: Contains an alphabetized list of terms used in this manual.

Index: An index to the information contained in this manual.

The A-Max IV System

The A-Max IV system consists of the A-Max IV software and an internal expansion card for any Amiga using a 68020, 68030, or 68040 processor. The card has two sockets for ROM chips and connects inside your Amiga to the floppy disk drive chain, enabling you to read/write Mac format disks using standard Amiga drives - no Apple drive is required.

The A-Max hardware also provides two serial ports that are pin compatible with those found on a real Macintosh. The serial ports can be configured as RS422 serial, LocalTalk, or MIDI. The MIDI option allows direct connection to MIDI standard digital musical instruments, without the need for an external midi interface box.

What's Included

If you purchased the complete A-Max IV system, your package should contain:

- The A-Max hardware expansion card
- One disk labeled "A-Max IV Program"
- This manual
- An A-Max IV registration card

If you purchased the A-Max II Plus to A-Max IV upgrade, your package should contain:

- A replacement chip for your A-Max II Plus hardware
- One disk labeled "A-Max IV Program"
- This manual
- An A-Max IV registration card

Note: It is very important that you complete and mail the registration card back to us as soon as possible. In addition to confirming your 90 day warranty, this card is the only way we can inform you of product upgrades and other information regarding A-Max IV. Please complete and send in your card now. The A-Max Program disk contains a file called ReadMe. This file includes information that was unavailable at the time this manual was printed. Please consult this file for any updates and corrections to this manual.

What's Not Included

In order to use A-Max IV, you must supply:

- AmigaDos 2.1 or higher

- A 68020 or higher Amiga with Zorro expansion slots. No floating point math coprocessor (FPU) or Memory Management Unit (MMU) is required to use A-Max IV.

- At least four (4) megabytes of Fast Amiga memory with a minimum of two (2) megabytes available when starting A-Max IV.

- An Amiga hard drive

- Apple 128K boot ROMs. These come as a set of two 28 pin chips from an original Mac 512K E or a Mac Plus.

- Macintosh System disks Version 7.0 or higher. Macintosh System 7.1 is recommended. Consult Section 3 for information on Apple system software. You MUST use Macintosh System 7 in order to obtain color Mac emulation!

- Mac applications and data.

Desirable Extras

- An Amiga high density (HD) drive for direct compatibility with Macintosh HD disks.

- An A-Max MIDI connector cable, available from ReadySoft, if you would like to make use of the A-Max hardware's MIDI features. The cable connects to one of the card's mini DIN-8 sockets and provides standard MIDI DIN-5 IN and OUT sockets.

- A 24-bit Amiga graphics card, such as the Retina or Picasso, to allow 8, 16 and 24-bit Macintosh graphics emulation without the Advanced Graphics Architecture (AGA) chipset found on the Amiga 4000.

How to Contact ReadySoft

If you require warranty assistance, would like to purchase an A-Max Midi cable, have a question, or just want to rave about how great A-Max IV is, please call us at (416) 731-4175, between 9 a.m. and 5 p.m., eastern time, Monday through Friday. You may also FAX us at (416) 764-8867.

Section 2
Installing A-Max IV

Backing up your Disks

Protect your investment. Before you begin, make a backup copy of the A-Max Program Disk. This disk is not copy-protected and can be copied by using the Amiga Workbench Duplicate menu command, the CLI Diskcopy command, or any Amiga disk backup utility.

ReadySoft supplies A-Max IV without copy protection for your convenience. Please don't lend, give or otherwise distribute this program to anyone. Remember, software piracy discourages development of new products and, in particular, upgrades to A-Max IV.

About the Mac ROMs

You will need to purchase a set of Macintosh 128K ROMs in order to use A-Max IV. A "set" of ROMs are two matched chips from an older Macintosh computer. There have been several revisions to both of the Macintosh 128K ROMs. All ROM revisions will work equally well with A-Max IV. The Macintosh ROMs are Apple part numbers 342-0341-x and 342-0342-x where 'x' is a revision letter A,B,C. Often the set of two chips will have different revision letters. Always keep the two ROMs as a set. The revision letters on each chip do not need to match.

WARNING: Static Discharge

If you are removing the ROMs from a Macintosh, be extremely careful not to come into contact with the wires connecting the video display tube to the video board. Like your television, the video display tube may contain a deadly high-voltage charge, even if the computer is unplugged.

Apple ROM chips, like all electronic devices, are extremely sensitive to static electrical discharge. Improper handling of the chips could damage them. Be sure to ground yourself by touching a metal surface or using a static protection wrist strap (available from Radio Shack) before handling the ROM chips.
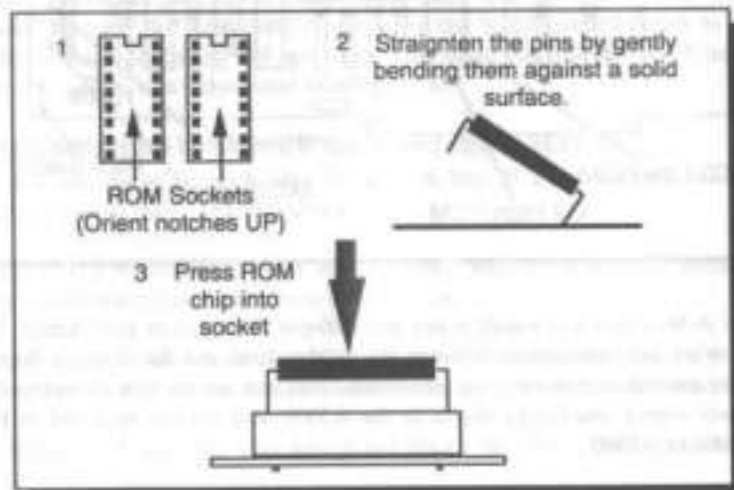
Preparing the A-Max IV Card

WARNING: Electrical Hazard

Unplug your Amiga before installing the A-Max hardware card or any other hardware! Installing the card with the power on could cause you injury and could damage the equipment. ReadySoft is not responsible for any damages caused by improper installation of the A-Max hardware. Such improper installation may void the warranties on both the A-Max IV hardware and your Amiga.

If you are unfamiliar with the proper procedure for installing hardware in your Amiga, we recommend that you have the installation performed by an experienced service technician.

Installing ROMs in the A-Max Card

The two Mac ROM chips must be inserted into the empty 28 pin IC sockets on the A-Max IV card, labeled IC3 and IC4. Insert a ROM chip into each socket (either chip in either socket - the order doesn't matter) with the U-shaped notch of each chip matching the notches in the sockets.

1 ROM Sockets (Orient notches UP)

2 Straighten the pins by gently bending them against a solid surface.

3 Press ROM chip into socket

Ensure that the two rows of pins on each chip are not crooked or broken. To insert the chip, start with one row of pins resting lightly in their sockets, then align the second row. Finally, push the whole chip firmly into place. If the chip is very hard to push in all the way, check that no pins are bent up underneath the chip. If there are, straighten them out and try again.

When both the ROM chips have been installed, hold the board so that the "A-Max © ReadySoft" text is in the upper right-hand corner of the board, and reads properly. Check that the notches of the ROM chips point up and that no pins are bent or broken. You are now ready to install the card in your Amiga.

Installing the A-Max IV Hardware Card

Remove your Amiga's cover. For information on removing the Amiga's cover and installing peripheral cards, please consult your Amiga's manual.
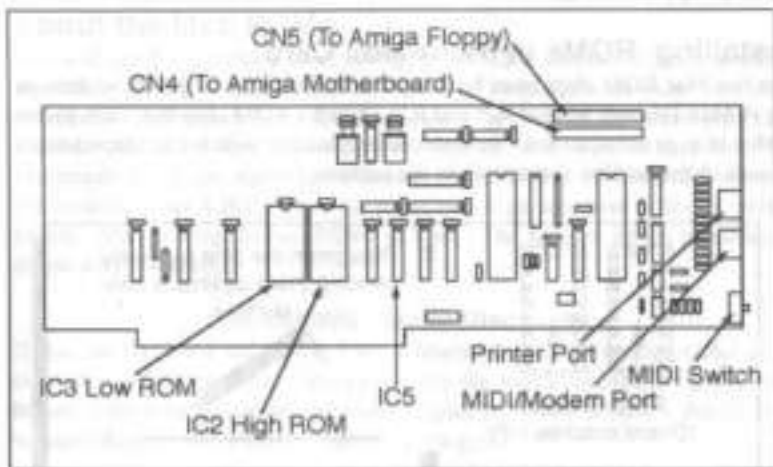
The A-Max card will install in any free 100-pin Zorro slot in your Amiga. To allow an easy connection between the A-Max card and the Amiga's floppy drive connector, however, we recommend that you use the slot closest to the power supply and floppy drives in the A2000, and the top-most slot in the A3000 or A4000.

Decide on the slot you wish to use and carefully insert the A-Max card into this slot.

In order to read Mac formatted disks with your Amiga drive, you must connect the A-Max card's 34-pin floppy connector into the drive chain.

Disconnect the 34-pin ribbon cable that presently connects the Amiga motherboard to the internal floppy drives and replace it with the cable that came with A-Max IV. This replacement 34-pin cable has female connectors for the Amiga motherboard and the A-Max hardware card. Plug the cable into the Amiga's motherboard connector and the A-Max hardware card connector labeled *To Amiga Motherboard*.

Use the cable that was previously connected between the Amiga's motherboard and the disk drive to connect the drive to the upper 34-pin connector on the A-Max hardware, labeled *To Amiga Floppy*. Make sure the end of the cable with a twist is connected to drive DF0:.

IMPORTANT! Each cable has a red stripe on one edge. Adjacent to each of the 34-pin connectors on both the Amiga motherboard and A-Max card is a numeral 1, denoting Pin 1 of the connector. When connecting your cables, make sure the red strip on the cable is on the same side of the connector as the marking for Pin 1.

After the A-Max card is installed, if you wish to make use of MIDI software with A-Max IV, plug the optional MIDI cable into the mini DIN-8 serial socket labelled "MODEM/MIDI" and move the MIDI control switch to the position labelled "MIDI." If you will not be using this port for MIDI, make sure the switch is in the position labelled "STD."

Upgrading an A-Max II Plus Card for A-Max IV

If you are upgrading to A-Max IV from A-Max II Plus you will need to modify your A-Max II Plus hardware.

NOTE: If you purchased the A-Max hardware with the A-Max IV software this modification has already been done for you.

1. Open your Amiga and disconnect the drive cable that connects DF0:, as well as the cable to the Amiga mother board, from the A-Max II Plus card.

2. Remove the card from your Amiga and place it on a dry, clean, flat surface.

3. Locate the chip labelled IC5 near the center of the A-Max II Plus card. The label IC5 is located just below the chip that must be replaced. With the edge connector that inserts in the Amiga's slot facing towards you, IC5 is located just to the right of the Mac 128K boot ROMs.

4. Using either a small flat-blade screwdriver or a chip pulling tool, gently remove the existing IC5 chip from the board.

5. Locate the replacement IC5 chip that was included in your A-Max IV upgrade kit. Making sure that the notch on the IC5 chip is facing towards the top of the A-Max card, in the same direction as the notches on the adjacent ICs, carefully line up the legs of the IC5 chip with the holes in the IC5 socket on the board. A small amount of pressure may be needed to align the IC5's legs with the socket. If so, align one side of the chip's legs with the socket and gently press until the legs on the other side of the chip are lined up.

6. When the legs are lined up with the appropriate socket holes, gently press the new chip into the socket making sure not to bend the legs on the chip. If a leg is bent during installation, carefully remove the chip and gently straighten the bent leg.

Be careful not to break the leg of the chip! ReadySoft will not be responsible for damage incurred during the installation. If you are uncomfortable installing this chip, please have the installation performed by a qualified electronic technician.

7. Reinstall your A-Max card, reconnect the drive and motherboard cables, and close your Amiga.

If you need help reinstalling the A-Max hardware, please consult the installation section above.

Installing the A-Max IV Software

The AmigaDOS format A-Max Startup program and associated utilities must be installed on your hard drive.

The A-Max IV disk is not copy-protected and includes an automatic hard disk installation program called A-Max Install. Simply click on the A-Max Install icon and you will be prompted to supply the drive and directory names as destinations to receive the necessary A-Max IV files.

Even though you could manually install the A-Max IV software, we recommend that you use the installer to insure the files are properly placed on your Amiga.

The installer will copy the following files and create these directories:

File	Directory
A-Max Startup	User-specified destination
A-Max Disk Transfer	User-specified destination
A-Max Utilities	DEVS:A-MaxFileDevices
Video Controller Files	DEVS:A-MaxVCtrls

A new command, A-MaxInit, will be copied to your Amiga's C: directory. A line will be added to your startup-sequence, as the first command following the SETPATCH command, to automatically run A-MaxInit each time your Amiga is booted. A-MaxInit restarts the Amiga each time the machine is powered-up.

Important: A-Max IV will not operate unless A-MaxInit is installed and functioning properly.

Please restart your Amiga following the software installation. This makes sure that A-MaxInit is functioning when you first use A-Max IV.

Section 3
Disk Drives and File Transfer

Amiga Disk Drives

A-Max IV can directly read only Macintosh high-density disks under Mac emulation. In order to do this, however, you must have an Amiga high-density (1.76 Mb) disk drive. We highly recommend that you add a high-density disk drive to your system since all Apple system software is normally provided on a high-density disk. You will need to special order Apple system software on low-density disks from either Apple or your local dealer if your Amiga has a low-density drive.

If you have an Amiga low-density (880K) drive, you will be able to read and format IBM PC format 720K disks under Mac emulation. Since most of today's Macs contain the Apple SuperDrive, you will be able to share data with a real Mac using an IBM PC format low-density disk.

In order to read to a Mac low-density disk with an Amiga disk drive (either low or high-density) you must use the supplied A-Max IV Disk Transfer program to copy the Mac disk into a file device compatible with A-Max.

A-Max Disk Transfer

The A-Max Disk Transfer program provides the means to transfer the contents of Mac low-density disks to a file, as well as transfer Mac files to low-density disks. Low density disks are read in their entirety, and the contents are stored in an A-Max-readable file. This program works best with low-density drives; if one is available, you should use it, although high density drives should not cause problems under most circumstances.

To use the A-MaxDisk Transfer program, double-click on the icon. The A-Max IV Disk Transfer window, shown on the next page, will display.

You must first indicate which floppy drive you'll be using. Click on the appropriate button.

Copy Mode

After you select the floppy drive, select a copy mode:

Only Allocated Blocks – This mode only copies those blocks which have been allocated; that is, blocks which have been written to and are currently marked as active and not deleted. This is the fastest mode, as only real information, and not empty blocks, is copied. Under most circumstances, this mode should be used.

Full Disk – The entire contents of the disk are transferred. Full Disk mode is useful if you are copying a non-standard or damaged disk.

Verify Writes – All writes will be compared against the original information, to test for errors. Note that turning Verify Writes on will add appreciably to the amount of time a transfer takes.

Error Mode

A-Max Disk Transfer offers two different methods of error handling. Each mode is exclusive; selecting one automatically de-selects the other. The modes are:

Abort on Disk Error – If a disk error is encountered, the transfer will be aborted.

Skip Errors – If an error is encountered, the entire disk will be copied anyway. Note that the resulting file or disk may not be usable.

Transferring Files

If you are transferring a disk to a file, you can use the Set Directory gadget to specify the directory to which the file will be sent. The default directory is DEVS:A-MaxFileDevices. Files that are written to this directory are automatically recognized by A-Max IV at boot. If the file is written to another location, it will have to be mounted before it can be recognized. (Use the Devices gadget on the A-Max Startup window.)

Once all the specifications have been made, initiate the transfer by clicking on the appropriate button. "Transfer File to Disk" will copy a Mac disk image file to a DS/DD low-density floppy, in Mac format. "Transfer Disk to File" copies a low-density Mac disk to a disk image file.

The **Disk Name** field contains the name of the Mac disk. If you are copying a disk to a file, this name is taken from the disk. The resulting file is given the same name. If you are copying a file to a disk, this name is taken from the file; the resulting disk is given the same name.

The **Deltas** field gives you an indication of how well the disk read operation is performing; the lower this number is, the more closely the disk is being tracked. The **Errors** field will keep track of the number of errors encountered. The **Track** field reports the track currently being read or written, depending on the operation.

Close the Disk Transfer program either by clicking on the Quit gadget, or by clicking on the Close gadget.

Section 4
Starting and Configuring A-Max IV

This section is designed to get you quickly up and running your A-Max IV based Macintosh. For information on installing the A-Max IV software and hardware, consult Section 2, Installing A-Max IV.

A-Max IV Startup

Locate the A-MaxStartup program on your hard drive. A-MaxStartup will be located in the hard drive directory you specified for the installation of your A-Max IV files.

For easy use, you may wish to use the Workbench "Leave Out" feature to leave the A-MaxStartup icon on your Workbench. To leave the icon on the Workbench, drag the A-MaxStartup icon out of its normal directory and place it on the Workbench window. With the A-MaxStartup icon still highlighted, select LEAVE OUT from the Workbench ICON menu.

To begin using A-Max IV, double-click the A-MaxStartup icon using the left mouse button.

Running the A-Max Startup program from the CLI, rather than Workbench, allows you to add the option "auto" to the command to begin Macintosh emulation without any user action, for example:

```
run A-MaxStartup auto
```

If you don't select the autorun option, or start the program from Workbench, A-Max IV will present its preferences screen before beginning the emulation.

A-Max IV Preferences

Running the A-MaxStartup program opens the A-Max IV Preferences menu and displays the A-Max IV copyright box. To remove the copyright box from the screen, select it by clicking the box with the left mouse button, or select one of the A-Max IV Preference buttons.

The A-Max IV Preferences menu is divided into eight categories: Video, Memory, Multitasking, Devices, SCSI, General, and Serial/Parallel. Each is used to configure how A-Max IV interacts with your Amiga during emulation.
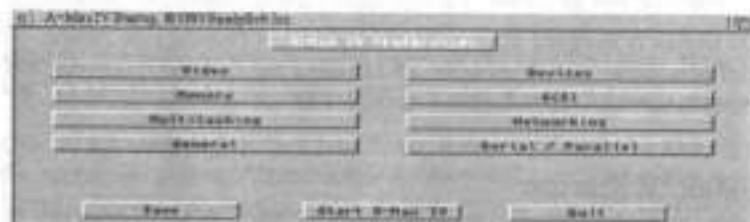
If you are running A-Max IV for the first time, or your A-Max IV configuration file has been deleted, the Video preferences will be automatically displayed.

Video Preferences

The manner in which the Mac desktop is displayed is controlled through the Video Preferences window. Click on the Video gadget in A-Max IV Preferences to display this window.
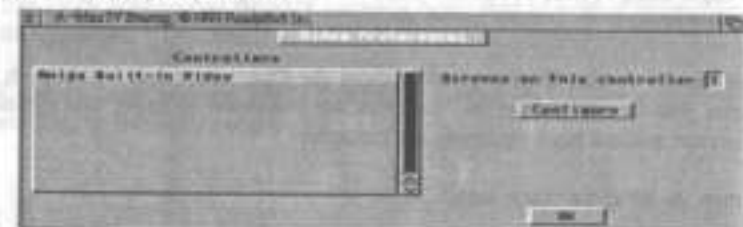
Selecting a Controller

When the Video Preferences window opens, a list of the available Controllers will display in a scrollable dialog. You will always see at least one controller: Amiga Built-in Video. If you have a display card, such as a Picasso or Retina board, and have installed the proper A-Max driver in the Devs:A-MaxVCtrls directory, this card will also show up in the Controllers list.

All of the controllers displayed in the Controllers list are available within the Macintosh emulation, and can be further configured through the Monitors control panel.

Configuration

24-bit Video

If you are using a 24-bit graphics board, all configuration of that board is done through the software that came with the board.

Other than selecting the appropriate board and the resolution you wish to use, no further configuration within A-Max IV is necessary.

Several styles of 24-bit graphics cards are currently available for the Amiga. Some may require that you use two monitors (or one monitor with a switchbox to change between Amiga graphics and the graphic card), while others allow you to display both Amiga graphics and 24-bit graphics using one monitor.
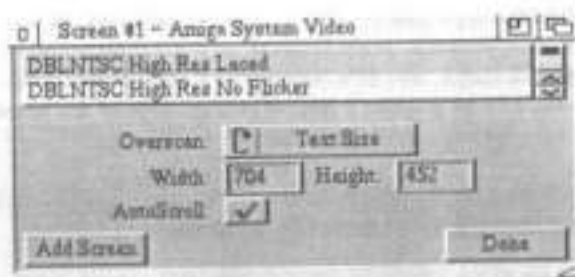
A-Max IV should be compatible with a Workbench running through an emulation mode of the 24-bit graphics card. Make sure, however, that A-Max's screens are NOT redirected through the emulation software. A-Max, via its video driver, will send the proper video output directly to the hardware.

For a list of currently supported 24-bit graphics boards, please see the README file included on the A-Max IV program disk.

Amiga Video

A-Max IV can make use of any of the Screen Modes available for Amiga video. In fact, you can configure A-Max to use a number of different Screen-Modes; each will appear to the Macintosh emulation as a "virtual monitor." Configuration is done as follows:

From the Video Preferences window, highlight "Amiga Built-in Video" and click on the Configure button. A requestor, similar to the Amiga's Screen-Mode requestor, will display.

```
┌─────────────────────────────────────────────────┐
│ □ │ Screen #1 - Amiga System Video      │⊡│⊏⊐│  │
├─────────────────────────────────────────────────┤
│ DBLNTSC High Res Laced                      ▲    │
│ DBLNTSC High Res No Flicker                 ⊠    │
│                                                  │
│        Overscan:  [C]   Text Size               │
│         Width: [704]   Height: [452]            │
│        AutoScroll  [✓]                          │
│  ┌──────────┐                    ┌──────────┐   │
│  │Add Screen│                    │  Done    │   │
│  └──────────┘                    └──────────┘   │
└─────────────────────────────────────────────────┘
```

Each ScreenMode is added and configured individually. You may choose as many as eight different Intuition screens. Bear in mind that the memory required for each screen is allocated out of both "chip" and "fast" Amiga memory. The more screens you add, the more memory is used.

The steps are the same for each Amiga Screen Mode you configure:

1 – Select the screen mode from the scrolling screen mode list.

2 – Select an Overscan mode by clicking on the Overscan gadget. Each click cycles to the next option, one of the following:

Text Size
Graphics Size
Extreme Size
Maximum Size

These modes are taken from the Amiga settings, as defined in Overscan Prefs. The Width and Height settings for each mode is displayed in the Width: and Height: text gadgets. You can directly edit the values in these gadgets, provided the values you enter are "legal" for the selected screen mode.

3 – The AutoScroll flag enables and disables AutoScrolling. Click on the gadget to toggle it between modes. When AutoScroll is enabled, a check appears within the gadget.

4 – When the settings are satisfactory, click on the AddScreen gadget.

5 – Click on Done to store, temporarily, the Video Preferences settings. Note that you must click on Save, from the A-Max IV Preferences window, to permanently save these settings.

Once you select the Configure option, you must add at least one screen. If you don't, a warning requestor will display.

The number of the screen you are configuring is displayed in the title bar of the configuration window. For example, the titlebar will read "Screen #1 - Amiga System Video" for the first screen, and the number will increment for each additional screen. Once the screens have been configured, the number of configured screens for the selected controller is displayed at the top right-hand side of the Video Preferences window.

When you have finished configuring your screens, click on OK. This will return you to the A-Max IV Preferences window. Click on Save to permanently store your settings. If you do not save your settings, they will be valid only for the current A-Max session.

Virtual Monitors

The Macintosh employs a system of "virtual monitors." Each monitor serves as an additional Desktop area, and objects (program icons, folders, and files) can be dragged from one monitor to another.

The A-Max IV Mac emulation utilizes virtual monitors in two different ways. If, for example, you have a 24-bit display card, you can have two different physical monitors. Under these conditions, the A-Max version of virtual monitors behaves the same way that the Macintosh version does. When properly set up through the Monitors control panel, each physical monitor will display its own area of the desktop. You can then drag objects from one monitor to another.

When you are using the Amiga system video, however, the virtual monitors are truly virtual. You could, for example, have two screen modes defined: DBLNTSC:High Res No Flicker, and MULTISCAN:Productivity. These two modes would then appear to the Mac desktop as two different virtual monitors. However, both "virtual" monitors actually share the same physical monitor. You can still drag objects from one monitor to another. Crossing the boundary of one monitor brings to the front the screen for another monitor you've defined. In the example above, the screens would shift from DBLNTSC:High Res No Flicker to MULTISCAN:Productivity, as you moved from one desktop to the other.

When using an Amiga-based Intuition screen under Mac emulation, you retain all of the abilities of a standard Amiga screen. You can scroll the screen using the right Amiga-left mouse button combination, or you can drag the screen down by selecting the top of the Mac screen, in the area usually reserved for the Amiga menu bar, and pulling down while holding the left mouse button.

The configuration of virtual monitors is done within the Mac emulation, through the Monitors control panel. A-Max will boot into the last screen mode configured. When you first configure two or more Amiga System monitors, only the last one configured will be available. To activate the others, you must open the Monitors control panel. This causes all secondary screen modes to be recognized as virtual monitors.

These virtual monitors can be configured to occupy different areas of a larger virtual desktop. The transition boundary between one virtual monitor and another is defined by the adjoining sides. In the configuration shown below, monitors 1 and 2 are horizontally adjacent, while monitors 1 and 3 are vertically adjacent. Moving the mouse pointer across the right side of monitor 2 would bring you into the desktop of monitor 1; moving through the top side of monitor 1 would bring you into the desktop of monitor 3.
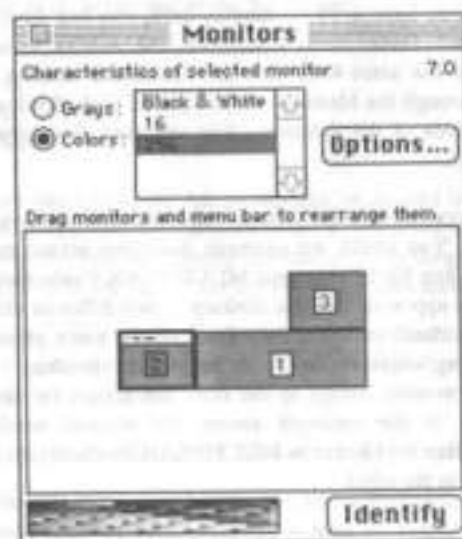
Note that the menu strip, following Macintosh convention, can be moved to any configured monitor. Under some circumstances, such as moving the Mac mouse to a second display during startup, this arrangement can cause you to boot into an "empty" monitor when you run the A-Max emulation. If this happens, simply move the mouse to the desktop that contains the menu strip.

Color Depth

Color Depth – the number of colors available – for each screen is also set through the Monitors control panel. Note that you are limited to the number of colors available for the video system you are using. On ECS Amigas, the maximum is 16 colors. AGA Amigas allow for 256 colors. Third-party boards allow for up to 24-bit color ("millions of colors," in Macintosh parlance). Color depth is set individually for each monitor.

When changing the color depth of any screen, the Mac Finder should be the only application running. Some Macintosh applications may be incompatible with A-Max's method of changing screen modes on the fly. Furthermore, if a screenmode change should be unsuccessful, and the screen which failed is the main screen, the Mac emulation must be shut down. Any unsaved work would be lost. If the screen which fails is not the main screen, you have the option of continuing without the screen.

Memory

Selecting the A-Max IV Preferences Memory button opens the Memory Preferences menu. Memory Preferences sets up how A-Max IV uses your Amiga's memory.

System Partition Size

System Partition Size sets aside the amount of memory permanently allocated for use by the Macintosh. Any memory that is set aside but not used by the Macintosh system will be available for use by Mac applications before any other Amiga memory is used.

The minimum System Partition Size is 1200K, the default setting, and may be increased by entering the amount of memory you wish in the System Partition Size requester. Selecting Kb allows you to enter the information in kilobytes, Mb allows you to specify the information in megabytes of memory. The default value 1200K, would be 1.2 if Mb is selected.

Selecting *Best Fit* from Memory Preferences allocates the System Partition so that the remaining free memory is as large as possible. This usually means, however, that the system partition memory will be allocated to the slower Amiga chip memory which reduces performance.

INIT Partition Size

INIT Partition Size sets the amount of memory allocated for use by Macintosh INITS as the system boots. A default value of 900K is available. The amount of memory available may be increased by entering a value in the INIT Partition Size requester. Any unused memory will also be available to Macintosh applications.

Use External Memory

If the *Use External Memory* button is selected, (this is the default) A-Max IV will allocate Amiga memory for Macintosh applications as they are run. Exiting the application frees the memory used for use by the Amiga, or another Mac application.

If *Use External Memory* is not selected, the System Partition Size must be large enough to accommodate the Macintosh applications you plan to use. The only reason to disable the *Use External Memory* function would be to run an application that is incompatible with externally allocated Amiga memory. At the present time, ReadySoft is unaware of any applications that have this limitation.

After your Memory Preferences are complete, select the *OK* button to return to the main Preferences menu.

Multitasking

Selecting the Multitasking button from the A-Max IV Preferences menu opens the Multitasking Preferences menu. The Multitasking Preferences are used to establish how the Amiga and Macintosh share system resources, such as the CPU, during emulation.
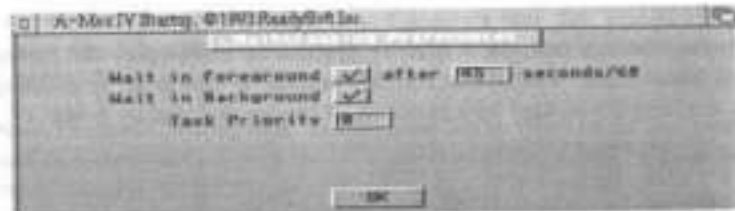
Wait in Foreground

If *Wait in Foreground* is selected, A-Max will allow the Amiga to use the processor as much as possible when A-Max is the current Amiga application and the Macintosh system is idle and waiting for input.

Wait in Foreground should be disabled ONLY when using applications that are timing dependent, such as games like Microsoft Flight Simulator.

The number of seconds A-Max will let the Mac system idle before giving up the CPU to AmigaDOS can be manually set by entering a value in the adjacent field. This value is set in sixtieths of a second (seconds/60). The default value is 10 sixtieths of a second. This value may need to be increased on slower Amigas, if A-Max fails to release the CPU when it is the foreground application.

Wait in Background

If *Wait in Background* is selected, A-Max IV will free the processor as much as possible when it is in the background and the Macintosh system is idle.

Task Priority

Task Priority sets the priority of A-Max with respect to other Amiga applications. A priority of 0, the default value, will generally be adequate. If you wish to give A-Max a higher priority you may raise the task priority by entering a new value in the Task Priority requester. The priority, however, should never exceed 15.

When the Multitasking Preferences have been set, select OK to return to the A-Max IV Preferences Menu.

Devices

Selecting *Devices* from the A-Max IV Preferences menu opens the Device Preferences menu. The Device Preferences menu is used to set up all filing devices (disk drives, hard drive partitions, or file devices) used by A-Max IV.

A-Max IV devices may be any of the following:

Floppy – An Amiga disk drive

A-Max Partitions – A partition on an Amiga hard drive designated for A-Max use. See Section 6 for information on setting up an A-Max partition on your hard drive.

Mac SCSI Partition – A dedicated hard drive attached to the Amiga's SCSI controller but dedicated to A-Max use.

File Devices – Files created by A-Max IV, either using the File Transfer Utility or created directly from the Device Preferences menu. File Devices are files contained on the Amiga's hard drive. Most file devices are stored in the DEVS:A-MaxFileDevices directory.

The Device Preferences menu lists the devices currently available for use in the area on the left, labeled "Devices." Selecting a device from the list provides information on its current settings, as well as the type of device.

Selected Device

The Selected Device area of the Device Preferences Menu lists the device type of the currently selected device.

Mount

Selecting *Mount* allows the currently selected device to be mounted when you begin Macintosh emulation. A mounted device is available for use on the Macintosh desktop.

Boot

Selecting *Boot* allows the currently selected device to be used to contain the system files needed to start the Mac. Any device may be a boot device. The

Mac will boot from the selected device, unless a Mac disk with the proper system files is available in the floppy drive. If so, the Mac will boot from the floppy.

Note: The Mac's "Startup Disk" control panel has no effect on the disk used to start Mac emulation under A-Max IV. All Boot settings must be made from the A-Max IV Device Preferences menu.

Remove

Removes the currently selected device from those available to A-Max IV. *Remove* is especially useful for deleting files created by the A-Max IV Disk Transfer utility after the file's contents have been transferred to the Mac hard drive or partition.

If you elect to remove a file device you will be prompted before the file is deleted. If you do not wish to remove the file, selecting cancel returns you to the Device Preferences menu.

Format

Format will format the currently selected device in Macintosh format. *Format* may be used to format partitions, mounted drives, or files for use by A-Max IV. If *Format* is ghosted, such as when an Amiga floppy is the selected device, the device can usually be formatted from the Mac desktop.

Add Partition

Adds a partition to the list of available devices. There is no restriction to the number of partitions or SCSI controllers you may access when using A-Max IV.

IMPORTANT: Do not add devices which have AmigaDOS information you wish to retain. Adding the device, and formatting it under A-Max, deletes any AmigaDOS information contained on the device.

Selecting *Add Partition* displays a requester listing the AmigaDOS partitions that are not currently used by A-Max IV. Select the partition you wish to add from the list of available partitions. Select the *Add Partition* button to add it to the list of available A-Max devices. Select Done to complete your choices and return to the Device Preferences menu.

Selecting *Done*, without adding a partition, will return you to the Device Preferences menu without changing the status of the devices listed.

Search SCSI Device

Search SCSI Device is used to mount a Mac formatted device attached to the Amiga's SCSI controller. Selecting *Search SCSI Device* from the A-Max IV preferences menu opens the Search SCSI Device menu.

The right area of the *Search SCSI Device* menu is used to enter information on the SCSI device you are searching for and the SCSI controller to which it is attached.

Device Driver

Device driver is the name of the SCSI device driver used by the Amiga. For most Commodore SCSI controllers, the device driver is named scsi.device. If you are not using a Commodore controller, consult the controller's manual for the name of the SCSI device it uses.

Device Number

Enter the device number, sometimes known as SCSI ID, of the device you are searching for. Most external SCSI devices have easily accessible ways to change the number on the device. It is important that no two devices attached to a SCSI controller have the same device number!

Device Flags

Device Flags are device driver-dependent. Please check the user manual for the device to determine if a Device Flag is needed. In most cases, the Device Flag may be left at 0, its default value.

Any partitions found will be listed on the left of the Search SCSI Device menu under Added Partitions. Selecting *Create Mountlist Entries*, located on the bottom of the Search SCSI Device menu, creates an AmigaDOS 2.0 compatible mount file in the DEVS:DOSDrivers directory. After the mountlist is created the partition will be automatically available each time A-Max IV is run.

If your device is not listed, make sure that the partition is not already mounted and check to be sure that the device driver, number and flags are properly set. Also, be sure that the memory type is properly set in the SCSI Preferences window.

When you have finished adding partitions select *Done* to exit the Search SCSI Device menu and return to the Device Preferences menu.

Add Existing File

Add Existing File on the Device Preferences menu displays a file requester from which you can select an existing file that is not currently listed as an available A-Max IV device.
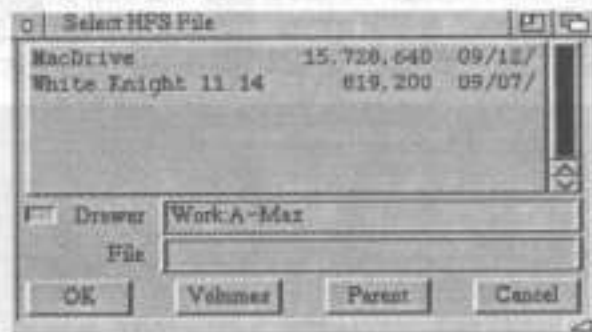
In order for the file to be used under Macintosh emulation, it must be properly formatted. You could, for example, convert an existing file that has been used as an IBM hard drive under Bridgeboard emulation, by adding the file and formatting it from the Device Preferences menu.

Create New File

Create New File is used to set up a new file for use by A-Max IV. Enter the size of the file you wish to create, in either kilobytes (Kb) or megabytes (Mb), below the *Create New File* button on the menu.

Selecting *Create New File* opens up a standard Amiga requester for entering the location of the file to be created. The default value of 800K, the standard size of a Mac low-density disk, is handy for transferring information, with the A-Max IV disk transfer utility, from the Macintosh to a low-density Mac disk.

You may also create a file that acts as the Mac's hard drive. Please note, however, that using a file as the Mac's hard drive greatly decreases the speed of A-Max IV.

When you have completed your Device Preference settings, select *OK* to return to the A-Max IV Preferences menu.

SCSI

Selecting *SCSI* from the A-Max IV Preferences menu opens the SCSI Preferences menu. SCSI Preferences are used to access Mac SCSI peripherals such as CD ROMs, scanners, or SCSI printers. SCSI hard drives should be added to A-Max IV using the *Device Preferences* menu.

Important: Any SCSI device added via the SCSI Preferences menu *must* have the proper software driver added to the Macintosh system folder before the device may be accessed. If, after adding a SCSI device to the controller, the Amiga will not boot or incurs numerous hard drive errors, turn off the machine and make sure that each device is properly connected and the last device in the chain is terminated. For information on SCSI connections consult your Amiga's User Manual or the manual that accompanied your SCSI controller or device.

ID#

The ID# is used to select the SCSI address of the device you wish to access. Place a check mark next to the proper ID number(s) by selecting the button to its right. Each SCSI device that you wish to use MUST have its ID selected.

Device Driver

The Device Driver is the name of the SCSI device driver used by the Amiga. For most Commodore SCSI controllers, the device driver is named scsi.device. If you are not using a Commodore controller, consult the controller's manual for the name of the SCSI device it uses. Only device drivers which comply with Commodore's SCSI Direct standard may be used.

Base Unit – The value entered in the *Base Unit* requester will be added to the SCSI ID number to get the unit number of the device.

Some SCSI device drivers use a Unit number to reference extra SCSI controllers or SCSI LUN's (logical unit number) to reference extra controllers and devices. Consult your SCSI controller's manual to determine the appropriate number. In most cases this value should be set at 0.

Mem Type

Mem Type is used to select the type of memory to be used when sending data to the SCSI device. Three choices (Any, 24 Bit and Chip) are available.

Any – Any, the default value, is the fastest available option and will work with most modern SCSI controllers and those built in to the Amiga.

24 Bit – This option may be required for older controllers when used in an accelerated Amiga.

Chip – This is the safest option and may be needed by some older Amiga SCSI controllers.

To exit SCSI Preferences and return to the A-Max IV Preferences menu, select *OK*.

General

Selecting *General* from the A-Max IV Preferences menu opens the General Preferences menu. General Preferences are used to set how A-Max handles low-density disks and how the Amiga mouse is used under emulation.

Format 720K Floppies

If an unreadable low-density floppy is inserted in the drive, and the *Format 720K Floppies* button is selected, the disk will be optionally formatted in a 720K IBM format. This format is compatible with any newer Mac that has the Apple SuperDrive. Note that it will be a Macintosh disk, with the HFS filing system, and will not be readable from AmigaDOS.

If the *Format 720K Floppies* button is not selected, the disk will be formatted in an 800K format that is compatible only with A-Max IV.

Right Button Mode

Right Button Mode allows the Amiga's right mouse button to perform either of two functions when using A-Max IV.

Selecting the *Same as Left Button Mode* button allows you to use either mouse button when using A-Max IV.

Selecting the *Double Click* button allows one click of the Amiga's right mouse button to perform the function of a double click under A-Max emulation.

Select *OK* to exit General Preferences and return the main menu.

Serial/Parallel

Selecting the Serial/Parallel button from the A-Max IV Preferences menu opens the Serial/Parallel Preferences menu. The Serial/Parallel Preferences are used to establish how your Macintosh software will access serial devices, such as a modem or MIDI device, or Parallel devices such as a printer.
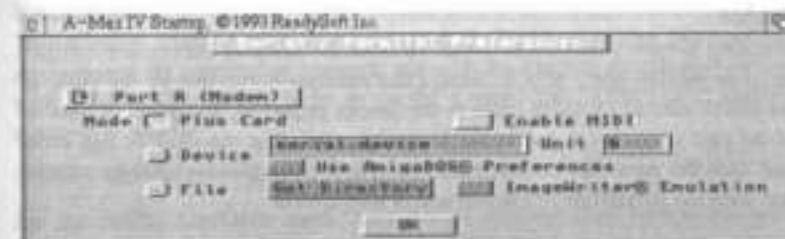
Port Mode

The standard Macintosh has two serial ports and no parallel port; one port is known as the Modem Port or Port A, and the other as the Printer Port or Port B. A-Max IV contains three options for handling each of these ports under emulation.

The Port to be modified is determined by the port label currently displayed on the upper left of the Serial/Parallel Preferences menu. You may switch between Port A (Modem) and Port B (Printer) by selecting the *Port* button with the Amiga's left mouse button.

Three options or Modes are available for each port. Plus Card uses the respective port on the A-Max hardware card, Device uses the appropriate Amiga port, and File saves the port's output to a file on the Amiga.

Plus Card

Selecting the Plus Card directs all Macintosh output to a device connected to the selected A-Max hardware port. This is, generally, the most compatible option for Macintosh software.

Enable MIDI

Selecting the *Enable MIDI* button allows you to use the MIDI controller built-in to Port A (Modem) of the A-Max hardware. You MUST use the optional MIDI cable (available directly from ReadySoft) in order to use the MIDI device. You must also move the switch on the rear of the hardware to MIDI from its standard setting of Normal.

You may also use a Mac MIDI device connected to the A-Max modem port via a standard Mac cable. If so, you should NOT enable the MIDI from the Serial/Preferences menu, and the A-Max port should remain switched to Normal.

Device

Selecting *Device* sends all information from the selected port to the Amiga's serial or parallel port. If your Amiga has multiple ports, specify the name of the driver used to access the port in the Device requester, and the Unit number of the port you wish to use in the Unit requester. The standard Amiga serial port uses the serial.device driver and is Unit 0. The standard Amiga parallel port uses the parallel.device driver and is also Unit 0.

Selecting the *Use AmigaDOS Preferences* button allows the specified port's settings to be controlled by the settings entered in the AmigaDOS Preferences for the Printer and Serial devices. The settings on the Mac software you are using will NOT override these Preference settings.

When printing to your Amiga printer, the best output will be obtained by using a Macintosh driver specific for your printer. There are several third party suppliers of printer drivers which allow the Mac to use printers other than those from Apple. We have successfully tested the GDT Softworks printer drivers which are available for dot matrix, daisy wheel and Hewlett Packard InkJet and LaserJet printers. (Call (604) 291-9121 for more information.)

File

Selecting *File* directs the specified Port's output to an Amiga formatted graphic file on the Amiga's hard drive. The *Set Directory* button brings up a file requester for specifying the name and location of the file.

Selecting the *ImageWriter Emulation* button prints using either the ImageWriter or LQImageWriter Macintosh printer drivers included with your Macintosh System software. The driver is selected via the Macintosh Chooser. The output file will be an Amiga IFF format graphic black & white image of the printout at full resolution. Only the Mac print options of Best and Faster, set from the Macintosh Print dialogue, are supported.

The IFF image may be loaded into an Amiga paint program, modified, and then printed from the software to your Amiga printer.

After the Port A and Port B settings have been made, select *OK* to return to the A-Max IV Preferences menu.

Networking

This window allows you to select a SANA-II (Standard Amiga Networking Architecture II) compatible network driver to be used as an ethernet device with A-Max. The default name is for the Commodore A2065 card; another example would be

```
DEVS:networks/eb920.device
```

for the ASDG LanRover card. Any Amiga ethernet card compatible with SANA-II should work with A-Max. The card's manual should give the device driver name.

The Unit and Flags fields will be zero for most devices, unless the card's manual describes otherwise.

If the named device is present, then the Mac "Network" control panel will give you the option of selecting EtherTalk, as well as the standard LocalTalk. Selecting EtherTalk will allow file sharing and printer access over Ethernet, and other protocols with the appropriate Mac software.

Save

Selecting the *Save* button on the A-Max IV Preferences menu saves the current settings to your hard drive. The files are automatically saved to your Amiga's DEVS: directory.

Start A-Max IV

Selecting the *Start A-Max IV* button on the A-Max IV Preferences menu begins the Macintosh emulation using the current A-Max IV Preference settings.

Quit

Selecting the *Quit* button exits the A-MaxStartup program.

Section 5

A-Max IV Operation

This section discusses the differences between using A-Max IV and a standard Macintosh.

Keyboard Differences

The A-Max IV Software emulates the Apple Extended Keyboard. The Extended keyboard has fifteen function keys, cursor control pad, numeric pad, an Escape key, and six IBM equivalent keys: Page Up, Page Down, Home, Insert, Delete and End.

NOTE: Not all keys on the extended keyboard are supported by all applications, for example the "Esc" key is sometimes an equivalent to clicking a "Cancel" button, but not always. This is the case for true Macintoshes as well.

There are several keys on the Extended keyboard that are not on the Amiga's; the key equivalents are:

Command (⌘) – right or left Amiga key

Option – right or left Alt key

For the IBM keys described below, in most cases the key equivalent is shift plus the Amiga key with the same IBM function:

Home	Shift-7 on the Numeric Pad
End	Shift-1 on the Numeric Pad
Page Up	Shift-9 on the Numeric Pad
Page Down	Shift-3 on the Numeric Pad
Clear (Num Lock)	Shift-(on the Numeric Pad
F11	Shift-Del
F12	Shift-Help
F13 (Print Screen)	Shift-* on the Numeric Pad
F14 (Scroll Lock)	Shift-) on the Numeric Pad
F15 (Pause)	Shift-/ on the Numeric Pad

With the above exceptions, each Macintosh key is represented on the Amiga keyboard. The Mac "Key Caps" desk accessory, included with the Mac system software, allows you to verify the keyboard mapping.

Disk Eject

Macintosh disk drives differ from most others, including the Amiga, in that they do not allow the user to eject disks upon demand. Instead, the Mac requires that you ask, through software, that a disk be ejected. The Mac system doesn't necessarily update directories or files immediately but, rather, waits until it needs the memory or a disk swap is requested.

A-Max IV, unlike previous versions of A-Max, does not indicate that an Amiga drive is ready to be ejected by displaying its drive number in the menu bar.

When using floppy disks with A-Max IV you MUST eject the disk using one of the Mac Finder (Apple's Desktop software) methods listed below. After requesting that the Mac eject the disk, wait a moment, until all drive activity has ceased and the drive light is out, before removing the disk from the drive.

NEVER eject a disk manually under A-Max IV. Failing to abide by this rule could result in corrupted or destroyed disks.

If you do eject a disk from an Amiga drive without the program's permission, A-Max IV will detect this and, via a requester on the Amiga's WorkBench, ask that you insert the disk before the Mac emulation continues. If this happens, you should immediately replace the ejected disk in the drive. This will clear the A-Max requester and close any open files on the disk.

There are several ways to request that a disk be ejected on the Mac:

When the Finder is running, you can eject a disk by selecting its icon and using the File menu command Eject, or Amiga-E from the keyboard. The disk's icon will not be removed from the screen and the Mac may later ask that you reinsert it.

When opening a file from a Mac application, the dialog box will contain an Eject button to eject the current disk.

Often the command-shift-1 and command-shift-2 keyboard sequences will eject the disks from either of two drives. Since a real Macintosh does not allow more than two drives to be connected, this option is unavailable if you are using A-Max IV with more than two disk drives.

You may also eject a Mac disk by physically dragging its icon into the Mac trashcan. While this action is normally reserved for deleting files from a disk, dragging the disk's icon ejects the disk and removes the icon from the Mac desktop.

The Mac Shutdown and Restart commands, located in the Finder's special menu, ejects all disks before either rebooting or shutting down the Mac emulation.

NEVER RESET YOUR AMIGA USING THE CONTROL-AMIGA-AMIGA KEY SEQUENCE OR SHUT OFF THE AMIGA'S POWER WITHOUT EJECTING ALL DISKS THROUGH THE MAC SYSTEM!

Finder Shutdown

To exit A-Max emulation choose Shutdown from the Mac's Special menu. This will close all open Mac applications, eject all disks in the Mac system, and return you to the Amiga's WorkBench.

Emergency Shutdown

If you should find that a Mac application, or the Mac Finder, has stopped responding to input, you may close it by simultaneously pressing the following keys:

<Ctrl> <Alt> <Esc>

This should ONLY be done in the event there is no other method to exit the application. Exiting by this means will lose all unsaved work and could result in either floppy or hard drive errors.

Mouse Control

The Mac has a single button mouse, so the Amiga's right mouse button is typically unused when running Mac software. You may, however, configure A-Max IV to use either mouse button from the A-Max IV Preferences menu.

Since A-Max IV multi-tasks with Amiga programs, you will need to transfer control of the Amiga mouse between normal AmigaDOS operation and A-Max emulation.

When you first start A-Max IV the mouse is automatically placed in A-Max mode and works exclusively with the Mac Desktop. To switch to AmigaDOS control, hold down the left Amiga Key and press the right mouse button. Repeat this procedure to switch back to A-Max mouse emulation.

Transferring Text from the Amiga to Mac

A-Max IV allows you to copy text directly between an Amiga application which uses the Amiga clipboard and the Macintosh clipboard. Once the text is copied to the Mac clipboard it may be transferred to any Mac application via the program's paste function.

It is important to note that some older Amiga applications use their own clipboard instead of the Amiga system's. These applications will not be able to transfer text to the Mac clipboard.

In order to transfer text, be sure that the Macintosh Finder is the currently selected application. Under System 7 the current application has a check mark next to it in the Application Menu. The Application Menu is the menu at the far right of the Mac Desktop. You can also bring the Finder "to the front" simply by clicking on the Mac desktop or on any disk windows the Finder has opened.

Using the <left Amiga> right mouse button combination, return to the Amiga Workbench. Select and copy the text you wish to transfer via the Amiga program's editing functions. When you return to the Mac Finder, via the <left Amiga> right mouse button combination, the text should be available in the Mac's clipboard.

Text transferred from the Amiga to the Mac is translated from Amiga format to Mac format using the same translation used by File Transfer IV (see Section 8 for information on File Transfer IV.)

Transferring Text from the Mac to Amiga

Transferring text in the opposite direction works in a similar manner. Copy the Mac text to the clipboard with a Copy command. Again, you must make sure the Finder is the front-most active program on the Mac side. When you switch to the Amiga Workbench the text contents of the Mac clipboard will be available via the Amiga's clipboard device.

Formatting Disks

Floppy disks are formatted under A-Max IV exactly as they are on the Macintosh; placing a blank disk in the drive while at the desktop will bring up a dialog box prompting you to initialize the disk.

If you have an Amiga high-density drive, and insert a blank high-density disk, the disk will format as a Macintosh 1.4 MB disk that may be used with any SuperDrive equipped Mac.

If you insert a low-density disk in either a high or low-density Amiga drive, and you've selected the Format 720K Floppies option from the A-Max IV Preference's General menu, the disk will be optionally formatted as a 720K IBM format disk compatible with a Mac SuperDrive.

If you have not selected the Format 720K Floppies option, a low-density disk will be formatted as an 800K disk that is compatible ONLY with A-Max IV.

A-Max IV does not read or write disks in the A-Max format used by previous versions of the program. You should copy any data or programs you have on these disks to a hard drive partition before upgrading your system to A-Max IV.

All A-Max hard drives, partitions, and file devices should be formatted from the A-Max IV Device Preferences menu before they are used under Mac emulation.

Sound

A-Max IV supports most digitized sounds. You don't have to do anything to enable this feature, except set the sound level in the Mac Control Panel. The sound option can be shut off by setting the volume to zero.

Many Mac applications, particularly games, go directly to the hardware to produce sound. While some may produce undesirable results, others will operate normally.

Real Time Clock

A-Max IV will automatically use the date and time from your Amiga system clock. Use the AmigaDOS Date command to verify that your System clock is accurate before starting A-Max IV.

Macintosh System Information

Selecting "About This Macintosh," available from the Apple menu, located at the far left of the Mac's menu bar, displays information regarding your Macintosh configuration. Total Memory represents the amount of memory, both Chip and Fast, contained in your Amiga. Largest unused block represents the amount of memory available to be allocated for new applications to run.

If "Use External Memory" is selected in the Memory Preferences window of A-Max Startup, this number will include memory available from AmigaDOS. System Software, which is always displayed in the About this Macintosh window, shows the amount of memory used by the Mac system.

If you have Mac applications running they will also be shown in this window, along with the amount of memory allocated to them.

Learning to Use the Macintosh

The manuals that accompanied your Macintosh system software are an excellent source of information if you're new to the Macintosh. We recommend that you spend some time with them in order to make the most of A-Max IV.

Another great source of information is the "Macintosh Bible," published by PeachPit Press. The Macintosh Bible is one of the best references available for Mac tips, tricks and shortcuts. Included is information on Mac operation, as well as tips on Mac software. The book is also available with two companion disks of Mac public domain and shareware software. These disks include some of the essential utilities, such as SuperClock, that no self-respecting Macintosh owner should be without!

Section 6

Hard Drives and File Devices

If your Amiga has a hard disk controller installed, or is an Amiga with a built in controller, such as the Amiga 3000 and 4000, A-Max IV can make use of partitions on your hard drives to store the Mac system and applications. If the controller has a SCSI port, A-Max IV can use it to access partitions on Mac formatted SCSI drives, and to use other Mac SCSI peripherals such as scanners, CD ROM drives, and printers.

Storing data on a Mac formatted external SCSI drive gives the advantage of being able to access the drive from both A-Max IV and real Macintosh systems. Storing data in a partition on an AmigaDOS hard drive lets you use an existing hard drive with both A-Max IV and AmigaDOS.

Partitioning an AmigaDOS Hard Drive

Before A-Max IV will recognize your AmigaDOS hard drive, it will have to be re-partitioned. To remain compatible with the large number of hard drive partitioning schemes for Amiga hard drives, A-Max IV relies on the setup software that comes with every hard drive to create its partitions. An A-Max IV partition is simply an AmigaDOS partition with a PARTITION name that begins with the four characters "AMAX," or the two characters "AX." Some examples are:

AMAX0:   AX0:

AMAXWork: AMAX99:

Following the manufacturer's instructions, create a partition of the size you want to dedicate to A-Max IV use. When you are partitioning your drive(s), most hard disk setup utilities will ask you to name the partitions as you create them. To denote a partition as an A-Max IV partition, the name you give it must begin with "AMAX" (no spaces, no hyphen) or "AX". Typically you might want to name your A-Max partitions AMAX1, AMAX2, etc., but you could also name them AMAXWork, AMAXBackup.

If your partitioning software doesn't allow you to name your partitions (it may automatically name them DH2:, DH3: etc.), you may have to edit the mount-list that the partitioning software creates (in the DEVS: directory). You will have to find the default names that the partitioning software created and replace them with names beginning with AMAX (as discussed above).

Hard disk controllers that utilize the "Rigid Disk Format" or "Hardblocks," which includes most modern controllers, don't create a mountlist entry. The only way to name your partition is with the manufacturer's setup software itself.

Note that you CANNOT use the AmigaDOS Assign command to create a logical device for A-Max IV use, for example

Assign AMAX1: DH2:

won't allow use A-Max IV to use DH2:, and will just be ignored. The actual device name of the partition must contain one of the A-Max IV partition designations, either AMAX or AX.

With A-Max IV you may also assign a partition to be used by A-Max by setting its "DOSType" equal to the constant 0x54465300, with your partitioning software. If a partition has this DOSType it will be recognized by A-Max IV regardless of its name. Also, the partition will be invisible to AmigaDOS programs such as the Commodore Installer and the "info" C: command, and will thus eliminate the "Not a DOS disk" errors that occur when these programs attempt to access AMAX: partitions.

You may also manually add an existing AmigaDOS partition to A-Max IV's list of devices with the Add DOS Partition in the Device Preferences window. In this case, the partition's name or DOSType do not need to be altered.

Once all partitions you wish to dedicate to A-Max IV use have been appropriately named, you must ensure that they are mounted before you run A-Max IV. Most hard drive controllers will automatically mount all partitions, in which case, you won't have to do anything. Some older controllers, such as the Commodore 2090, will only mount the boot partition and leave it to you to mount any other partitions. If this is the case, you should add the appropriate mount commands to your startup-sequence, for example:

Mount AMAX1:

Mount AMAX2:

After you have established your partition(s), use the A-Max IV Device Preferences to mount and format them for use. Please consult Section 4, Starting and Configuring A-Max IV, for information on performing these tasks.

Making A-Max IV Partitions Bootable

You will normally want to make one of your partitions bootable so A-Max IV will automatically start the Mac system without the need for a floppy disk. Once set up, any one of the partitions can be made bootable by installing the Mac System files in the partition, and by setting the partition as a boot partition in the A-Max IV Device Preferences menu.

If more than one partition contains a System folder, A-Max IV will boot from the first valid system it finds. You should use the Boot options in the Device Preferences menu to enable only the hard disk partition you wish to boot from.

Apple recommends that a single partition or disk NEVER have more than one System folder installed on it.

A-Max IV Partitions Under AmigaDOS

Since AMAX: partitions are really just AmigaDOS partitions that contain non-DOS information, they are still present and accessible while running the normal AmigaDOS environment. Usually, a "Not a DOS disk" error will be returned if you attempt to access A-Max IV partitions with AmigaDOS commands.

You can eliminate these errors by setting the DOSType of the partitions you wish to assign to A-Max's use, as described above.

WARNING

It is possible to issue an AmigaDOS Format command that will reinitialize your A-Max IV partition and make it usable by the Amiga filing system. Doing this will completely erase your A-Max IV partition and any programs or data you had stored there.

Using Mac SCSI Devices without A-Max IV Partitions

You may wish to use a Mac SCSI device instead of devoting an Amiga partition to A-Max use. Information on setting up a SCSI device for A-Max use is contained in Section 4, Starting and Configuring A-Max IV.

Section 4 also contains information on using other Macintosh SCSI devices, such as scanners, CD ROMS, and printers with A-Max. These devices, however, generally require that you install their driver in the Macintosh System folder. Consult the user manual of each device for information on installing its software.

Startup Sequence

When A-Max IV starts, it first checks for and installs all disk devices. These include:

• Up to four floppy drives;

• All the A-Max IV hard disk partitions, file devices and Mac formatted SCSI partitions in the order listed in the Device Preferences menu;

• Mac formatted SCSI devices, if they have been added in the A-Max IV SCSI Preferences menu. Devices are mounted in order of descending SCSI device address number. The drivers for Mac SCSI devices are loaded from the Macintosh system.

When all devices and partitions have been installed, the Mac system scans through the devices looking for a startup disk, one which contains a valid System Folder. A bootable Mac floppy disk will become the startup disk if it is in the disk drive as A-Max IV begins its emulation.

It is important to note that A-Max IV does not support the Mac system's "Startup Disk" control panel. All startup disk options are set via the A-Max IV Device Preferences menu.

Section 7
Software Compatibility

System Disks

A-Max IV requires that you use Apple System 7.0 or greater. System version 7.1 is recommended. While most Mac applications are compatible with System 7, you may find that some older applications will not work properly unless they are updated to System 7 compatible versions.

Apple now ships its System disks in a high-density format. If your Amiga contains a low-density drive you'll need to special order the System 7.1 disks in a low-density format. This format may be special ordered directly from Apple or one of their authorized dealers. Using the A-Max Disk Transfer utility you can transfer each System disk into a file device that will be mounted on the Mac desktop when you start A-Max. The System disk labeled "Installer" is a bootable Mac disk and, as a result, your Mac will startup from the file containing this disk's contents.

Once you've booted your A-Max IV Mac emulator from the Installer disk you may install the Mac System 7 files onto your A-Max partition.

Compatibility with Macintosh Applications

Since A-Max IV is an emulator, and not a Macintosh, there will be some Mac software that will not run under A-Max IV. Almost all Mac software that goes through the Macintosh operating system, which includes most productivity applications, will run under A-Max emulation. Because of the wide range of hardware in the Macintosh family, it is rare for modern Mac software to bypass the Macintosh operating system.

Compatibility problems arise when software talks directly to the hardware, bypassing the operating system. This is most evident in copy-protected software, games and programs designed to use Mac hardware add-ons. Unfortunately there is little that can be done to allow these types of programs to run with A-Max IV.

The A-Max IV hardware enhances compatibility with software because it provides two chips identical to those found in a Macintosh - the 8530 Serial Communications Controller (SCC) and the 6522 Versatile Interface Adapter (VIA). Programs running under A-Max IV can directly access either of these chips and achieve the correct results. Examples of such programs include terminal programs, MIDI applications, and programs that make use of the VIA's accurate timers.

What to Do if an Application Won't Run

Some older Macintosh applications will refuse to run unless your A-Max IV system is configured exactly like a standard Mac. If you encounter such a program, upgrade your Mac software to the latest release version from the manufacturer, a version which is System 7 compatible. If the program goes directly to the hardware to produce sound, set the sound volume level to zero in the "Sound" control panel. This can stop some applications from attempting to produce sound in an A-Max IV unfriendly manner.

On Amigas equipped with the 68040 CPU, such as the A4000/040, some older applications will run only with the CopyBack cache mode of this processor disabled. Use the standard Amiga CPU command to disable the copyback cache mode. Again, upgrading your Mac software will usually resolve any problems with the 68040.

If you have problems booting from an existing Mac hard drive partition, try disabling the Extensions (or "INITs") present on the hard drive by holding down the shift key as A-Max IV starts up - the Welcome to Macintosh window will display "Extensions disabled." Increasing the "INIT partition" size in Memory preferences may be necessary in order to solve this booting problem.

Section 8
Moving Files Between the Amiga and Macintosh

The A-Max IV installation software installs a Mac utility to transfer files, or complete directories, back and forth between AmigaDOS disks and any Mac format A-Max disk device. This program, File Transfer IV, is installed as a file device by the A-Max IV installation software and is contained in the "Utils" directory on the Mac desktop when you start A-Max IV.

File Transfer IV also provides functions to convert different types of files during the transfer. With the MacBinary file transfer, for example, you may download Mac applications under AmigaDOS from information services and then later transfer the application from MacBinary format into a usable form on the Mac side.

Start A-Max IV and boot the Mac system as usual. Double click the Utils disk icon to open the disk, and then double click the File Transfer IV program icon to run it. The program opens with a window displaying both copyright information and the Version number. Click on this window to access the File Transfer IV menu.
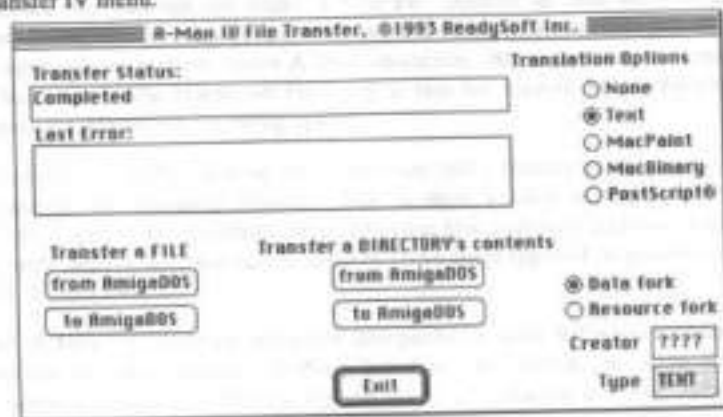
The File Transfer IV menu is divided into six areas. The upper left of the menu contains information on the Transfer Status and, just below it, information on the last error encountered, if any.

On the right of the menu, the Translation Options section allows you to select between five options for conversion of the file. Below the Translation Options are the buttons used to specify whether the data or resource fork information for the file is transferred and, just below these buttons, are gadgets for entering the Creator and Type for the file. Transfer of files and directories is controlled by the buttons on the bottom of the menu under the labels *Transfer a FILE* and *Transfer a DIRECTORY's contents*.

File Conversion Options

The conversion options available with File Transfer IV are:

None – Copies the file without any translation. This is useful to copy files that you will translate with other software, such as ASDG's Art Department Professional for the Amiga, or Adobe PhotoShop on the Mac side.

Text – Converts plain text files between the two systems. Amiga line feeds and Mac carriage returns are translated and vice versa. Accented and non-standard characters are translated to the equivalent character, or the closest available character.

MacPaint – Converts single bitplane images (2 colors) between Macpaint or IFF, depending on whether the file is being transferred from or to AmigaDOS. Files transferred to AmigaDOS are converted from MacPaint to IFF, transferring from AmigaDOS converts the IFF to MacPaint format.

MacBinary – MacBinary is the most common format for Macintosh applications and files stored on Bulletin Board Systems. Macintosh files downloaded from a BBS can be transferred using the MacBinary setting.

PostScript – Use this option when transferring PostScript files.

Advanced Options

There are additional gadgets for selecting Mac-specific attributes of the Mac source or destination file. When a file conversion option is selected, defaults are set for these options that will be correct for most uses of File Transfer IV.

Fork Selection

Macintosh files are composed of two logical segments called forks. Every file can have both a "resource" and a "data" fork. Most applications, and many data file formats, store all their information in the resource fork and access it with the Mac Operating System's Resource Manager. Some files may have text or other data stored in the data fork.

The Fork Selection gadget allows you to reference the contents of either fork of a Macintosh file. The MacBinary conversion mode always transfers both forks of a file.

File Type and File Creator

Every Macintosh file has a File Type and a File Creator field. This information provides the same basic function as AmigaDOS's .info files. Each of these items is a four character string. The file type specifies what kind of information the file contains: TEXT, APPL, PICT, PNTG, etc. The file creator is a unique identifier of the application that created the file: WRIT, FPNT, etc.

To enter a File Type or File Creator, click in the appropriate string gadget and type the identifier. Again, if you don't know what abbreviations to use, or do not care to specify any, the default values will most often be correct.

Transferring Files and Directories

From AmigaDOS

Selecting the "from AmigaDOS" button under the "Transfer a FILE" or "Transfer a DIRECTORY's contents" headings transfers you back to the Amiga's WorkBench where a standard Amiga file requester is opened.

Select the file or directory you wish to transfer by scrolling through the list of available directories or filenames. The current path is displayed below the directory list. When you have made your choice select "OK" to begin the transfer.

A standard Mac file requester will appear. Select the drive and, optionally, any subdirectories to which you want the destination file copied. If you choose, you may also give the destination file a new name. The file will inherit the source file's name if you don't change it. Click on Save to complete the transfer.

To AmigaDOS

Transferring files or complete directories from the Mac to AmigaDOS reverses the above process. Selecting "to AmigaDOS" opens a standard Mac file requester. Select the file or directory that you wish to copy and select "Open" to begin the transfer.

After selecting Open from the Mac requester you will be taken to the Amiga Workbench where a standard Amiga file requester has been opened. Specify the destination for the file or directory and select OK to complete the transfer.

The file or directory is transferred to the AmigaDOS disk with the same file or directory name. If a file by that name already exists it will be overwritten during the transfer

Section 9

Printers

A-Max IV will print to any standard Macintosh printer connected to A-Max IV's serial port, or an Amiga printer connected to the Amiga's parallel port for which a Macintosh printer driver has been installed.

Drivers For Other Printers

There are several third party suppliers of printer drivers to allow the Mac to use other types of printers. We have successfully tested the GDT Softworks printer drivers which are available for dot matrix, daisy wheel and HP LaserJet printers. The GDT PowerPrint package (which supports Epson compatible dot matrix, HP LaserJet series and BubbleJet series compatible printers) is available from ReadySoft. For more information, call (604) 291-9121

ImageWriter Emulation

You can use A-Max's built-in ImageWriter emulation to print a document to an IFF file, which can then be modified and printed using any Amiga paint program. Information on setting up the ImageWriter emulation is contained in Section 4, in the discussion of A-Max Serial/Parallel Preferences.

You must install the Apple ImageWriter driver in the Mac system folder, and select it in the Macintosh Chooser, in order to access this emulation.

Creating A PostScript File

In order to create a PostScript file your Macintosh system folder must contain the LaserWriter file (LaserPrep is no longer required), and the LaserWriter should be selected with the Chooser desk accessory. When selecting the LaserWriter, you can safely ignore any "Can't Open AppleTalk" messages.

The System 7 LaserWriter driver has a Destination option to print to disk. Simply set this option to "PostScript File" before clicking the "Save" button and select a destination file name in the standard file requestor.

Some Mac applications, such as Aldus PageMaker, utilize their own printer drivers, most of which have options to create a PostScript file. A PostScript file created by A-Max and the LaserWriter driver may be taken to any Service Bureau for printing, or printed directly via a PostScript printer connected to the A-Max serial port, or the Amiga.

Section 10

A-Max IV Hardware Features

LocalTalk (AppleTalk)

"AppleTalk" now describes all of Apple's networking system, and "LocalTalk" describes the low level physical hardware of Apple's low cost network hardware, which was previously known as AppleTalk. AppleTalk Phase 2 can also utilize Ethernet (via EtherTalk) and Token Ring (via TokenTalk) hardware. Currently, A-Max IV supports only LocalTalk networks.

A-Max IV will allow SANA-II (Standard Amiga Networking Architecture II) compatible Amiga ethernet cards to be used as Apple EtherTalk devices, selectable with the Network control panel. See the Networking section of A-Max Preferences.

A-Max IV provides you with two serial ports that offer the same features as those of a Mac, including compatibility with the LocalTalk interface boxes made by Apple and other manufacturers, and other interfaces such as Farallon Computing's PhoneNet.

Using LocalTalk with A-Max IV is identical to using it on a real Mac, there are no A-Max IV Preferences controlling this option. Connect the interface hardware to the A-Max hardware's Printer Port, and use the Chooser desk accessory to turn AppleTalk on. You should then be able to access AppleTalk printers and file servers as you would on a Mac.

MIDI (Musical Instrument Digital Interface) Support

The A-Max IV hardware card lets you run many of the popular Macintosh MIDI sequencers and tools. The card provides the same serial port as a Mac and allows these programs to directly access the hardware and still retain A-Max compatibility.

When running MIDI software you can make use of the card's on-board MIDI box by connecting the optional MIDI Y-cable, flicking the switch on the rear of the card to "MIDI," setting the A-Max IV Serial/Parallel Preferences options to use Port A (Modem) and selecting the Enable Midi settings.

Alternatively, you may choose to connect the same MIDI box that you would normally use on a Macintosh to one of the A-Max card's serial ports if, for example, you need more than one MIDI Out port. In this case set the card's switch to the "STD" position and the Port A or B options, depending on the port you connect the MIDI device to, to use the A-Max hardware.

Once you have set up your system, MIDI applications should run as they would on a standard Mac.

NOTE:
The A-Max IV card's MIDI interface provides software with a 1 MHz crystal oscillator for precise adherence to MIDI specifications.

Glossary

AGA (Advanced Graphics Architecture) Chipset: The graphics chipset found in the Amiga 4000 and 1200 which is capable of displaying up to 256 colors on a standard Amiga WorkBench or 256 colors on the Mac under A-Max IV emulation.

Agnes: An Amiga custom chip that determines the amount of Chip memory your Amiga can use. The Amiga 2000 may address 1 megabyte of Chip memory. The Amiga 3000 and 4000 are capable of addressing 2 megabytes of chip memory.

AppleTalk: Apple's local area networking System Software.

Application Menu: The menu at the far right of the Mac's menu bar in System 7 that allows you to switch between active programs and hides windows from view.

Balloon Help: A feature of System 7 which provides help, in the form of small text balloons, that appears when you point at items on the Macintosh screen. Balloon Help is turned on and off from the Help menu, the second menu from the right on the Mac's menu bar.

Chooser: A Macintosh desk accessory that allows the user to select which printer driver on the System disk will be used for printer output, as well as other options such as the printer output port and AppleTalk activity.

Control Panel: A Macintosh desk accessory that lets the user control several different options, such as sound volume, mouse and keyboard. Equivalent to the Amiga's Preferences program.

Data Fork: One logical segment of a file in the Macintosh filing system that contains simple streamed data (e.g.: the raw text characters in a word processing document). See also Resource Fork.

File Creator: A four character unique identifier contained within a file in the Macintosh filing system that identifies the program on which the file was prepared.

File Type: A four character designator contained within a file in the Macintosh filing system that identifies what kind of file it is and helps the Finder decide how to use it.

Finder: The program that creates the Apple desktop. Equivalent to the Amiga's Workbench. The Finder program has many versions and should always be run in conjunction with the correct version of the System file.

Finder Shortcuts: A series of five helpful information cards which detail the keyboard shortcuts available as you work with icons and windows on the Mac desktop. Finder Shortcuts are displayed from the Mac Help Menu (See Balloon Help).

Folder: The equivalent to an Amiga directory. The folder is used on the Mac to group together files in a directory.

Fork: In the Macintosh filing system, one of two logical segments that constitute a file. See Resource Fork and Data Fork.

Resource Fork: One logical segment of a file in the Macintosh filing system that contains many elements and types of information, access to which is controlled by the Resource Manager. See also Data Fork.

System Folder: A Macintosh directory which contains information the Macintosh requires for operation. This includes startup information, fonts, Apple Menu items, and other system code.

System Disk or Startup Disk: A disk that has the required system information on it for the Mac to startup (boot). This always includes the System file and usually includes the Finder file (it is possible to have a System disk that consists of a System file and an application that is started automatically). Often there will be other files that are not absolutely necessary for startup. All the various system files are held together in a System folder on the System disk.

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